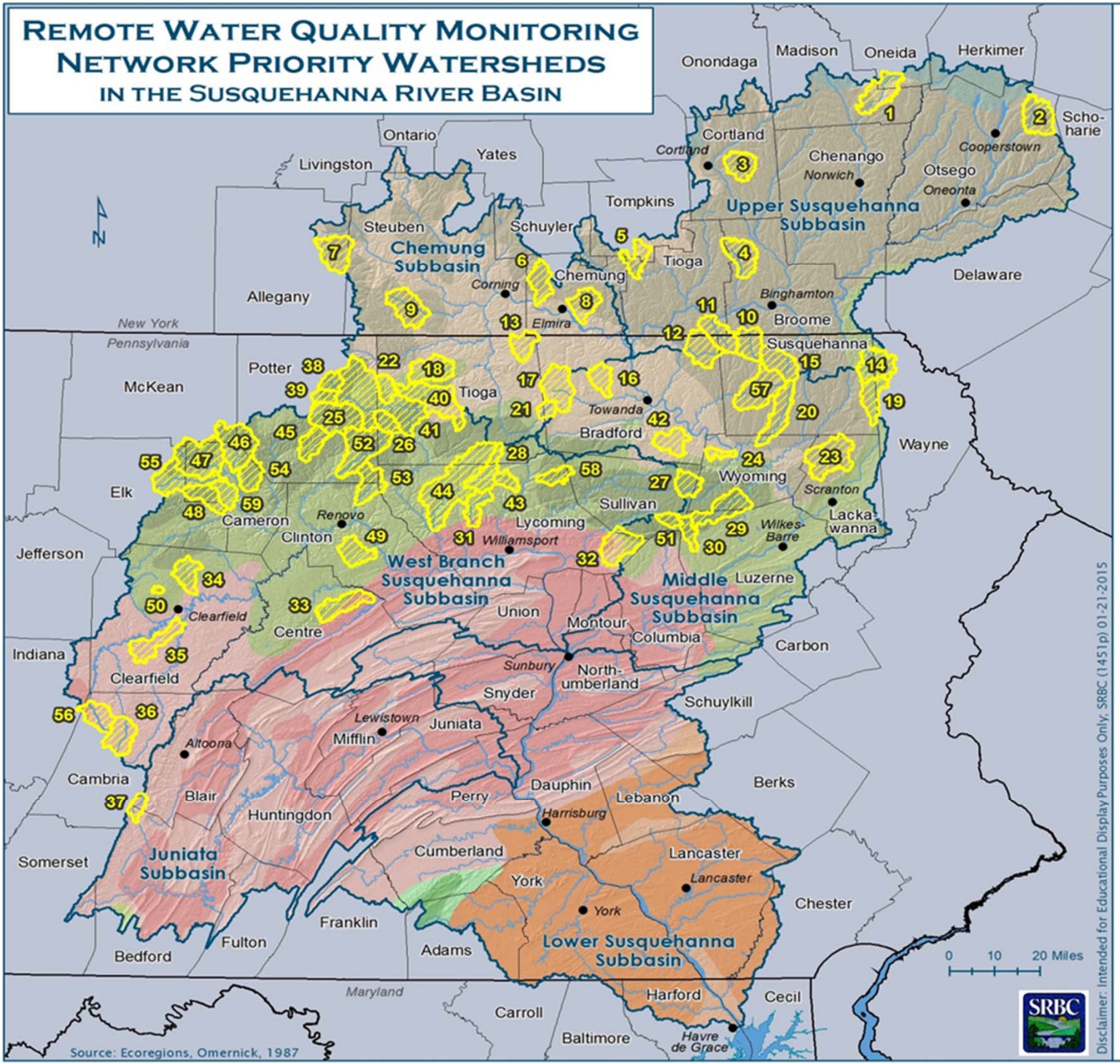
Water Quality Advisory Committee Meeting

May 6th, 2015

SRBC Program Highlights

- RWQMN Report- Water Quality and Macroinvertebrates- June
  - Turbidity and conductivity significant by ecoregion, but consistent.
  - Macros- 2011 distinct form 2012-13 (climate, precip)
  - Stream temp and IBI not correlated to well pad density
- RWQMN Five Year Assessment—Complete in FY2016
  - Network Objectives (internal/external)
  - Data collection (CIM, Macros, Fish, Discharge)
  - Site Locations
  - Cost

Remote Water Quality Monitoring Network Priority Watersheds in the Susquehanna River Basin



ECOREGIONS

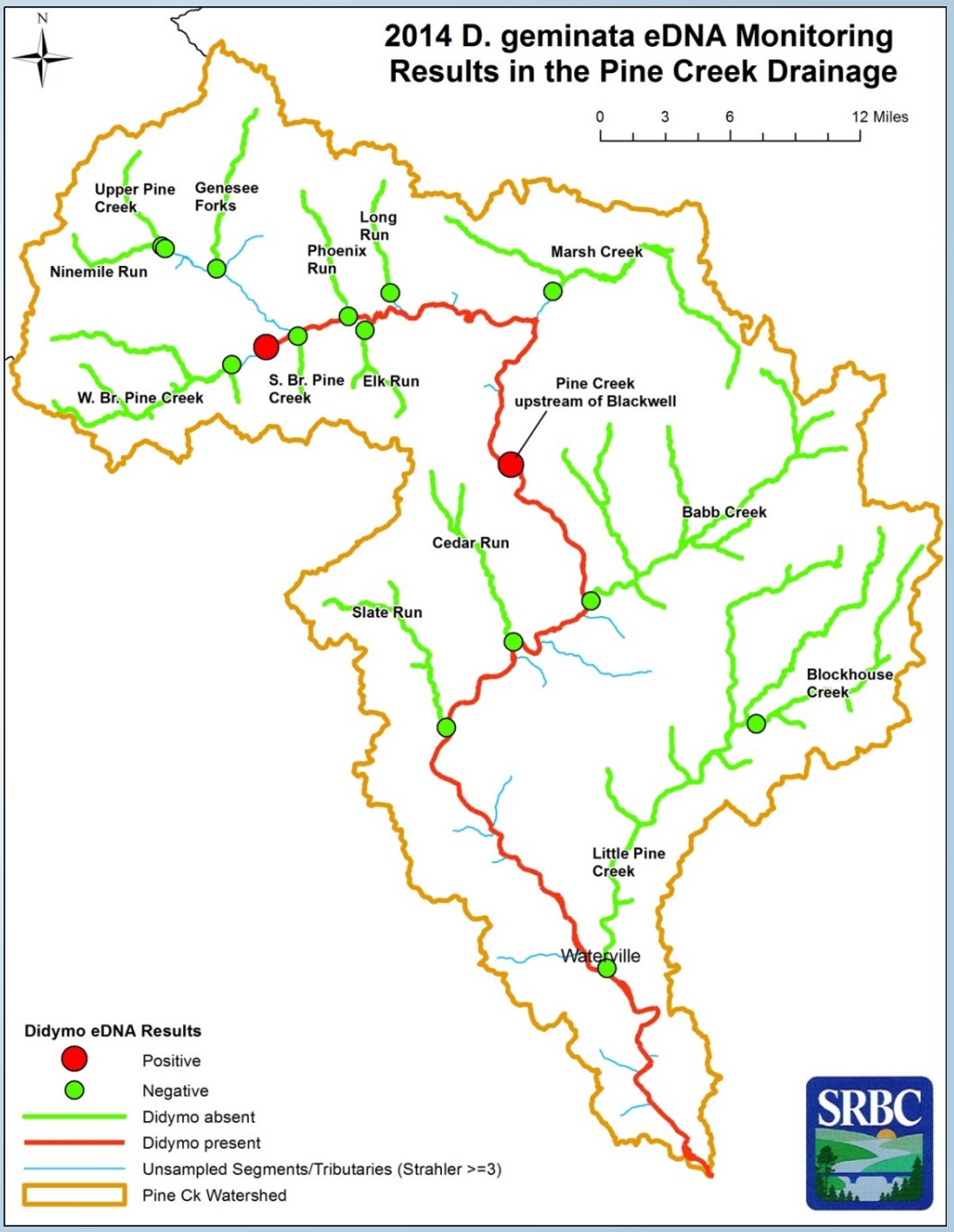
- Northern Appalachian Plateau and Uplands
- Erie/Ontario Lake Plain
- North Central Appalachians
- Northern Piedmont
- Blue Ridge Mountains
- Central Appalachian Ridges and Valleys
- Central Appalachians

PRIORITY WATERSHEDS

1. Sangerfield River
2. Cherry Valley Creek
3. Trout Brook
4. Nanticoke Creek
5. Catatonk Creek
6. Sing Sing Creek
7. Canacadea Creek
8. Baldwin Creek
9. Tuscarora Creek
10. Choconut Creek
11. Apalachin Creek
12. Wappasening Creek
13. Hammond Creek
14. Starrucca Creek
15. Snake Creek
16. Tomjack Creek
17. Sugar Creek
18. Crooked Creek
19. Lackawanna River
20. Meshoppen Creek
21. Tioga River
22. Long Run
23. South Branch Tunkhannock Creek
24. Little Mehoopany Creek
25. West Branch Pine Creek
26. Elk Run
27. Loyalsock Creek
28. Blockhouse Creek
29. Bowman Creek
30. Kitchen Creek
31. Larrys Creek
32. Little Muncy Creek
33. Marsh Creek
34. Trout Run
35. Little Clearfield Creek
36. Chest Creek
37. Bobs Creek
38. Upper Pine Creek
39. Ninemile Run
40. Marsh Creek
41. Pine Creek
42. Sugar Run
43. Grays Run
44. Little Pine Creek
45. East Fork First Fork Sinnemahoning Creek
46. Portage Creek
47. Driftwood Branch
48. Hicks Run
49. Baker Run
50. Moose Creek
51. East Branch Fishing Creek
52. Kettle Creek
53. Young Womans Creek
54. Hunts Run
55. West Creek
56. West Branch Susquehanna River
57. East Branch Wyalusing Creek
58. Pleasant Stream
59. Sterling Run

Other New Initiatives-

- Didymo Study in Pine Creek
- Eel Reintroduction
- Sediment and Turbidity Correlation Study
- Sediment Control-
  - Dirt and Gravel Roads

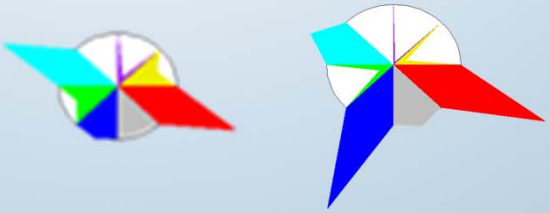


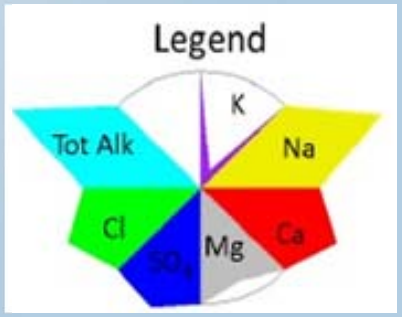
Member Highlights

Data Analysis Approaches

Data Analysis Approaches

- Synthetic Hydrographs
- Intensity Duration Frequency Curves
- Runoff Ratio
- Topographic Wetness Index
- Dominant Ion Concentration
- Maucha plots

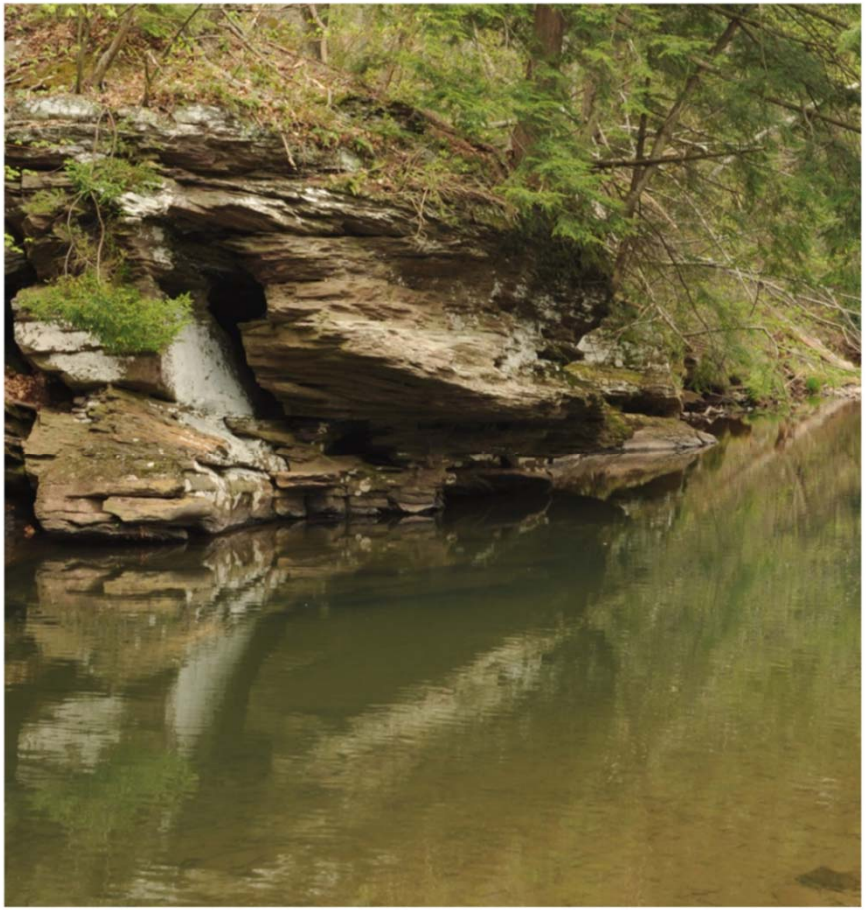




Tiadaughton State Forest

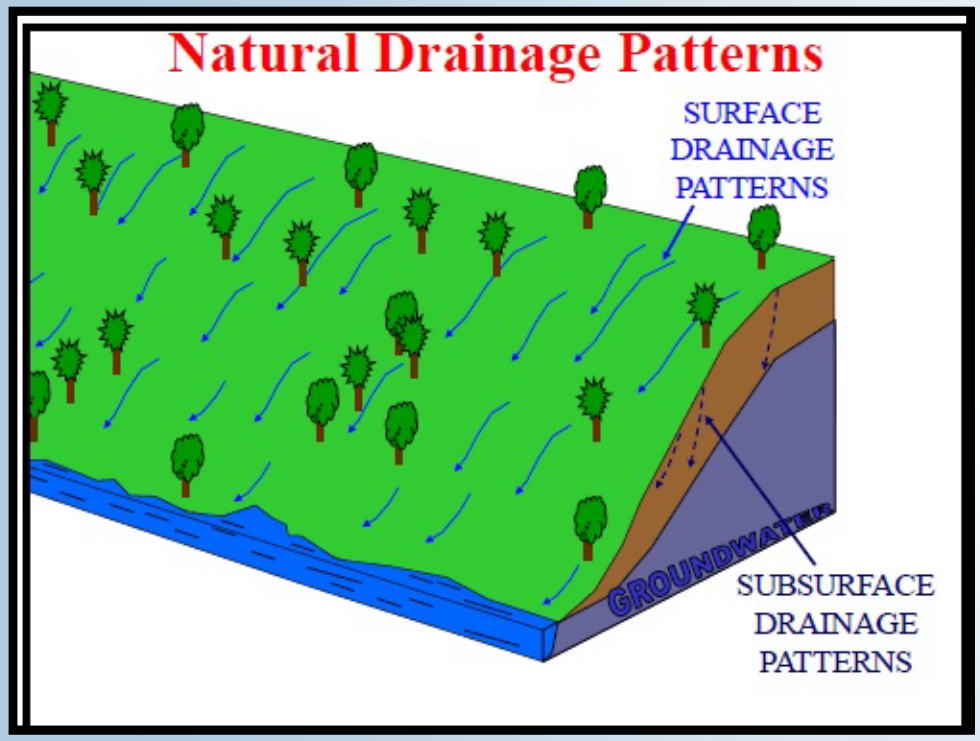
Unpaved Roads are a
Common Rural Feature

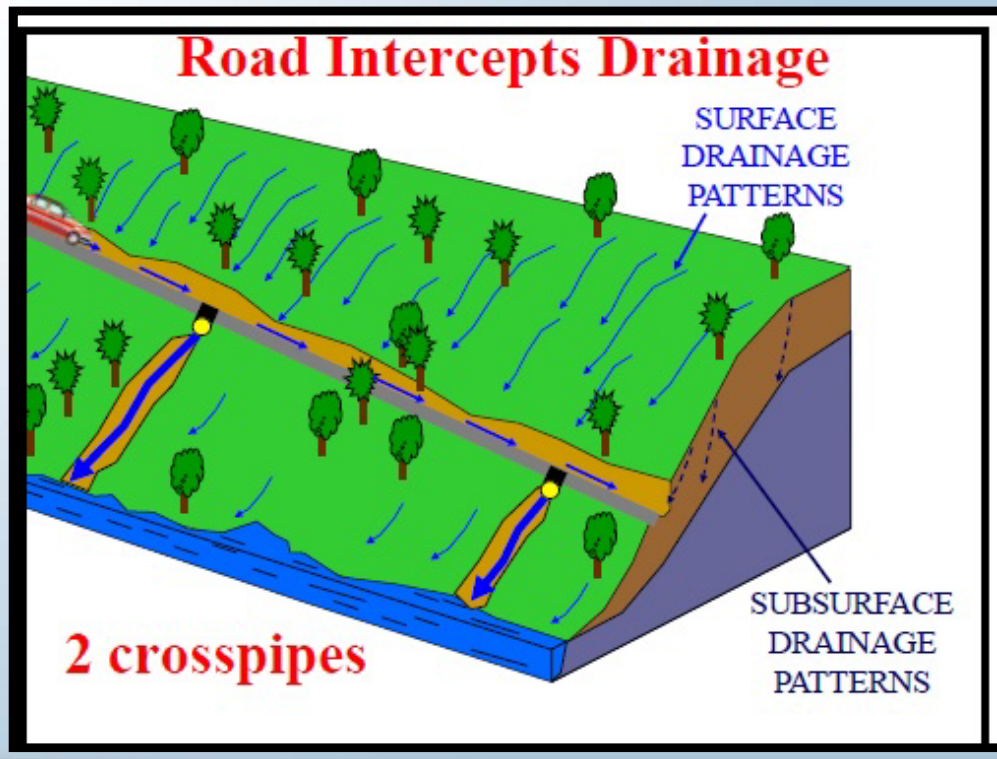
Sediment–Turbidity: One Link between Land & Stream



Vast Majority of New and Modified Roads Support Marcellus Production Activity

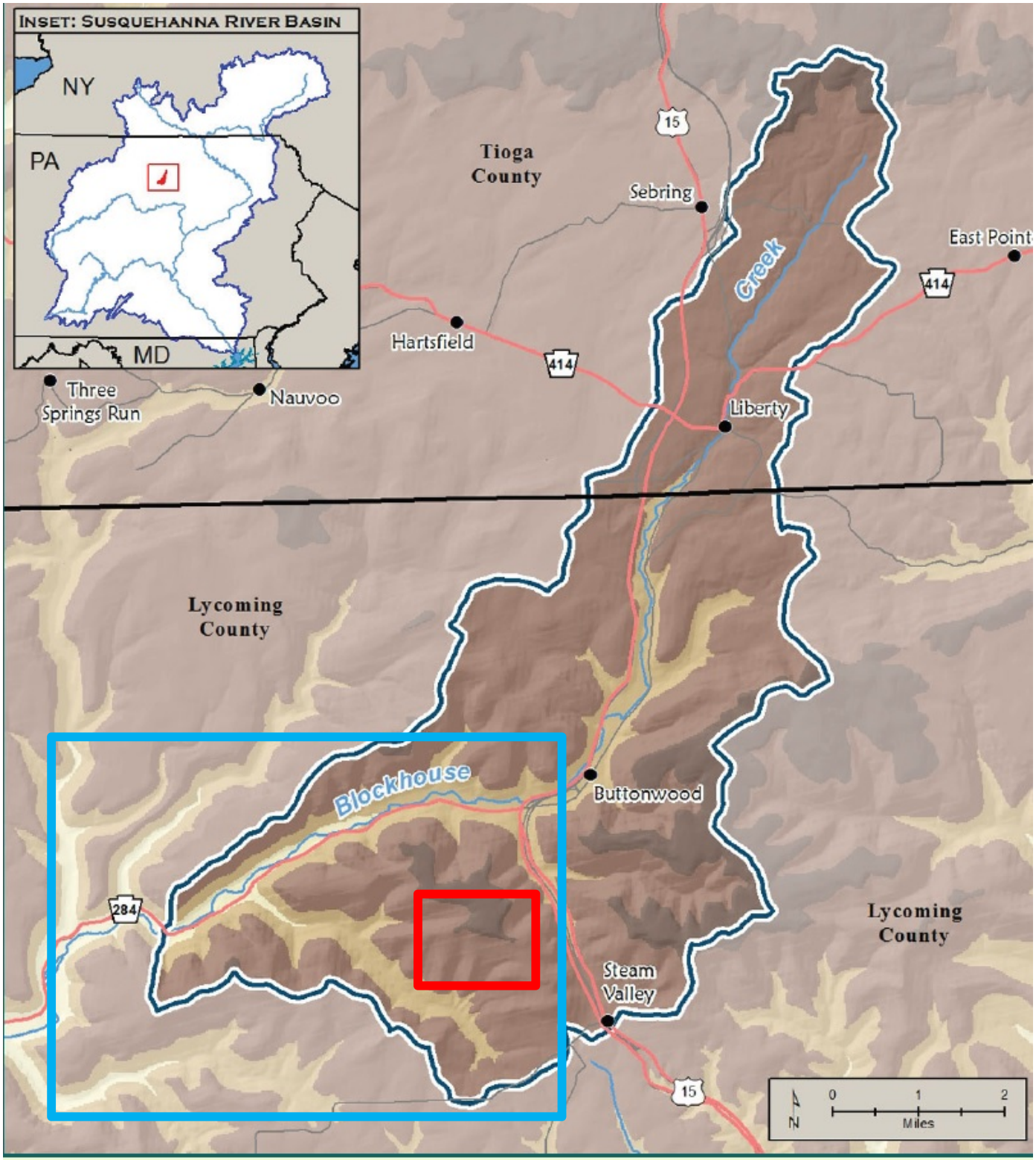
© 2011 PSU Center for Dirt and Gravel Roads

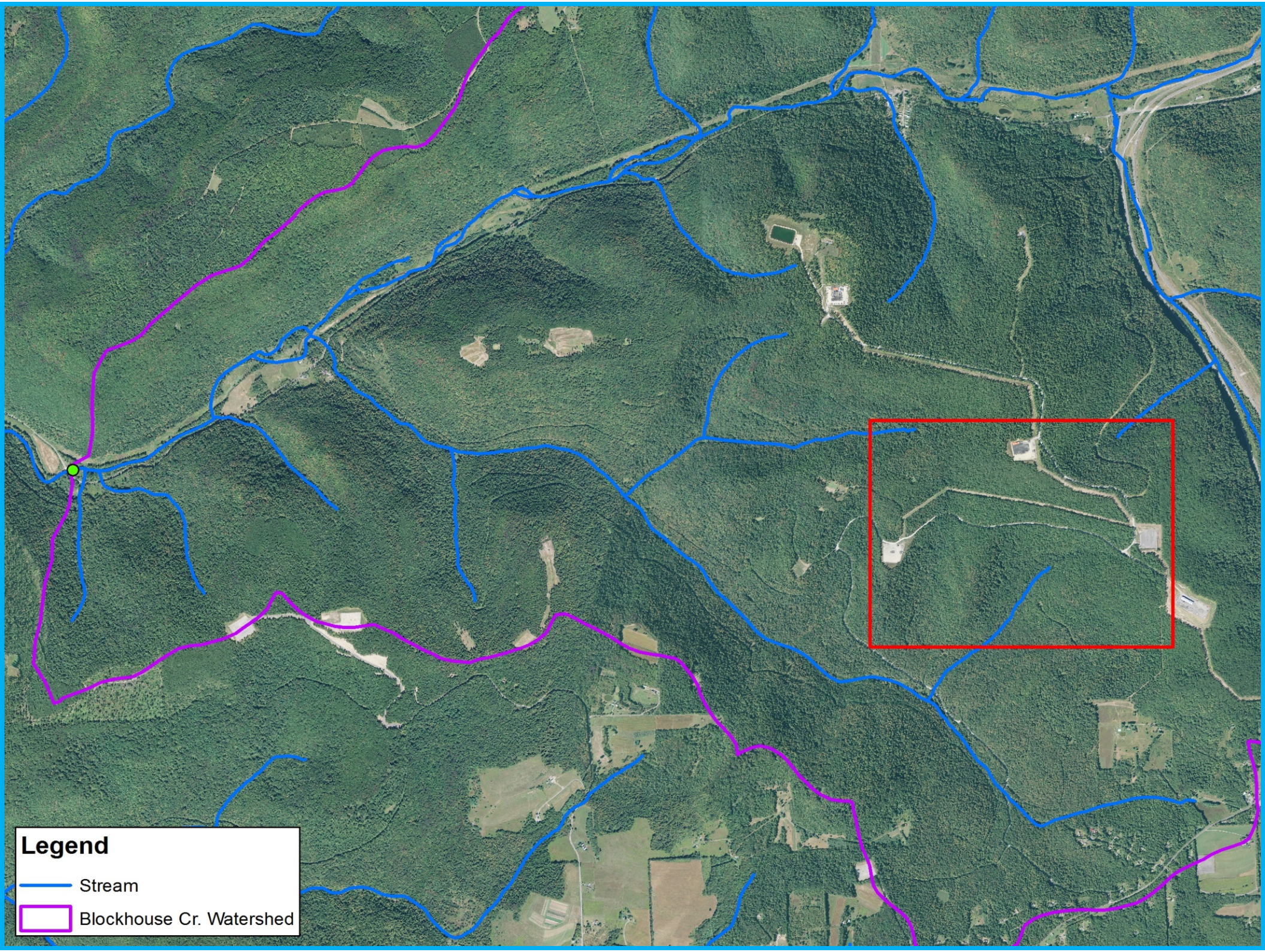




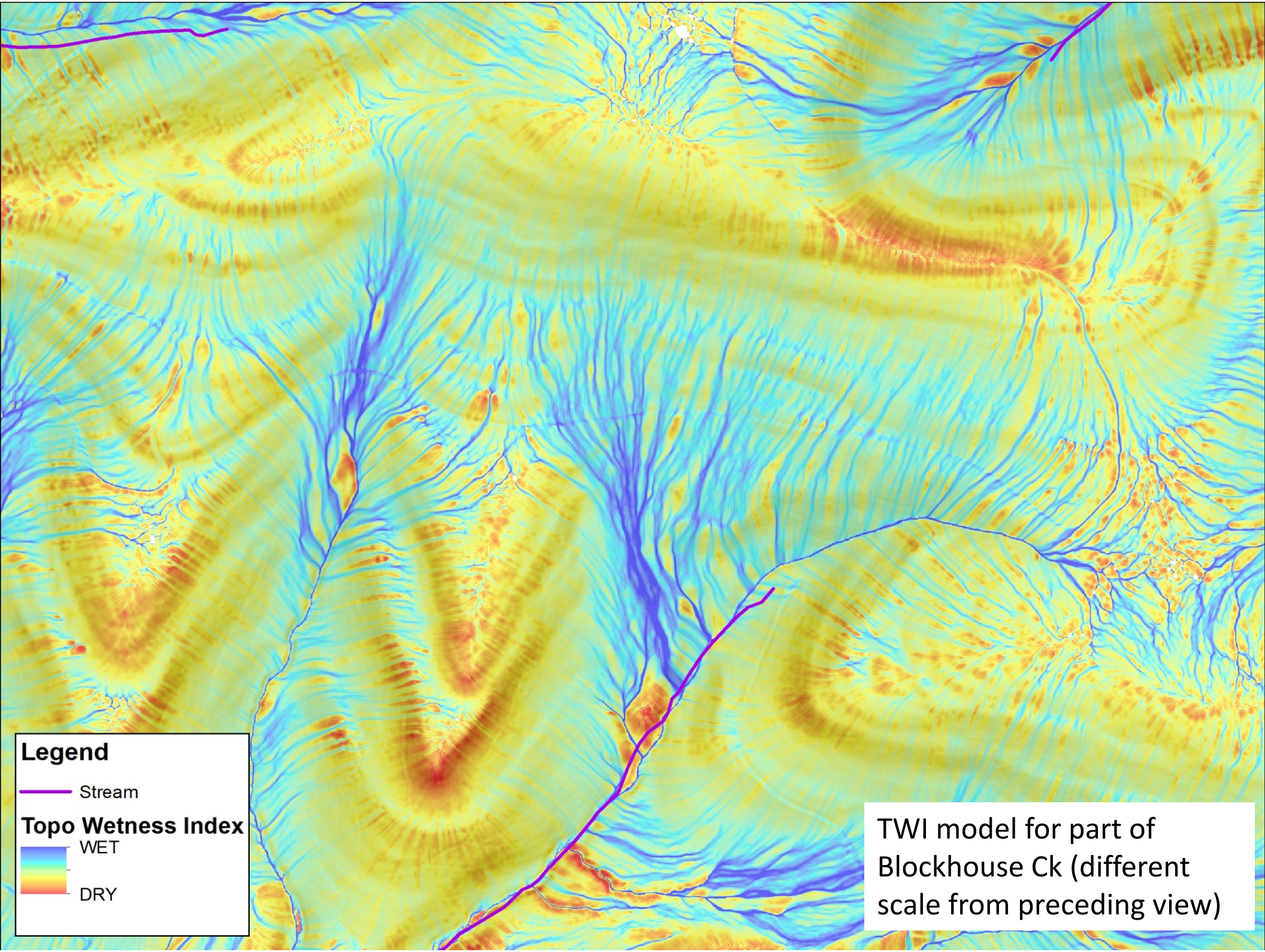
Blockhouse Creek notes:

- ABR (pads) – 13
- Roads:
  - Paved – 78.9
  - Unpaved – 26.9 (Gas related – 11.5)
- Digitized Pipelines - 9.7
- Stream Length – 68 miles
- Drainage Area – 38 sq. mi.

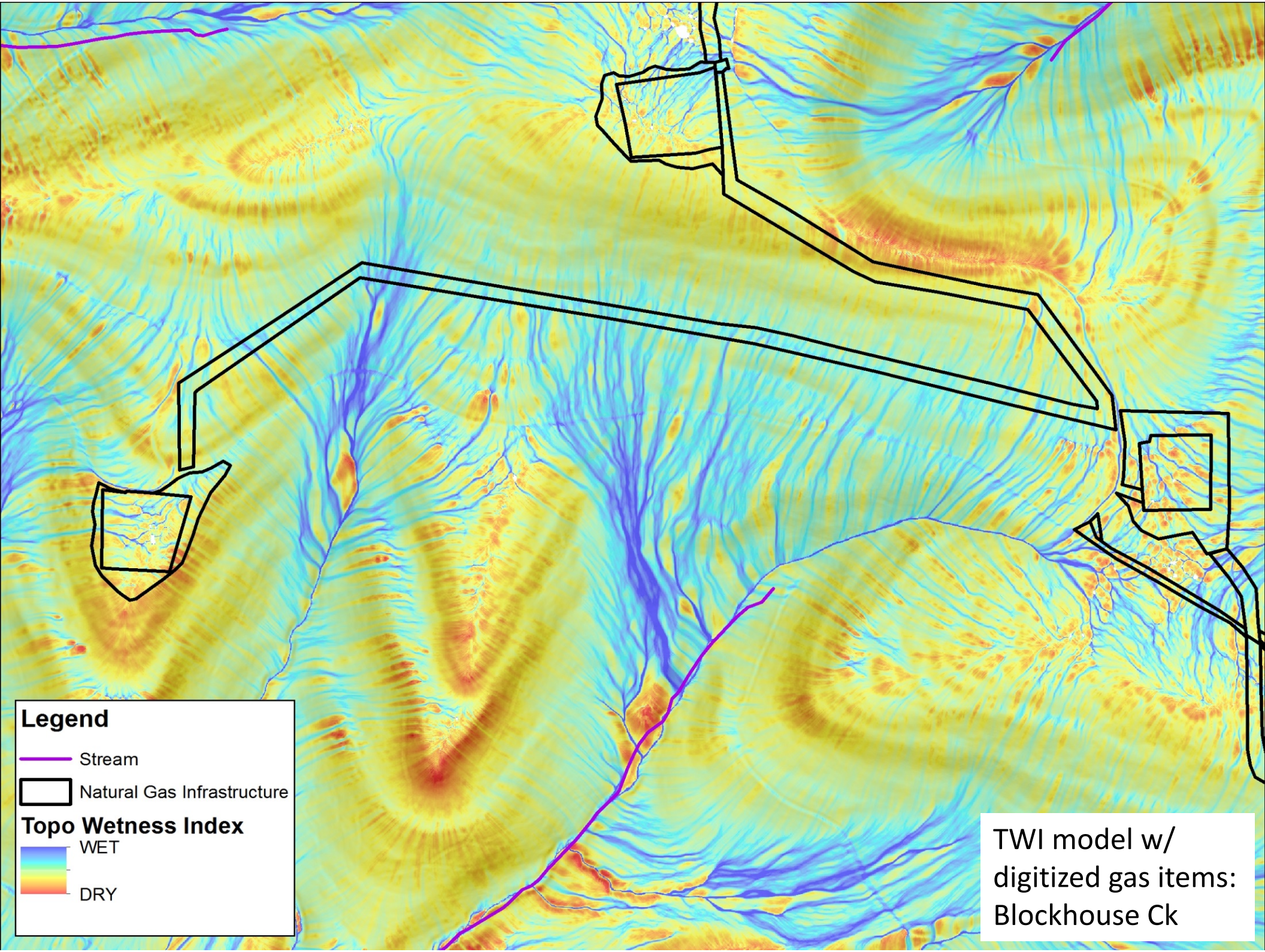



Legend
Stream
Blockhouse Cr. Watershed

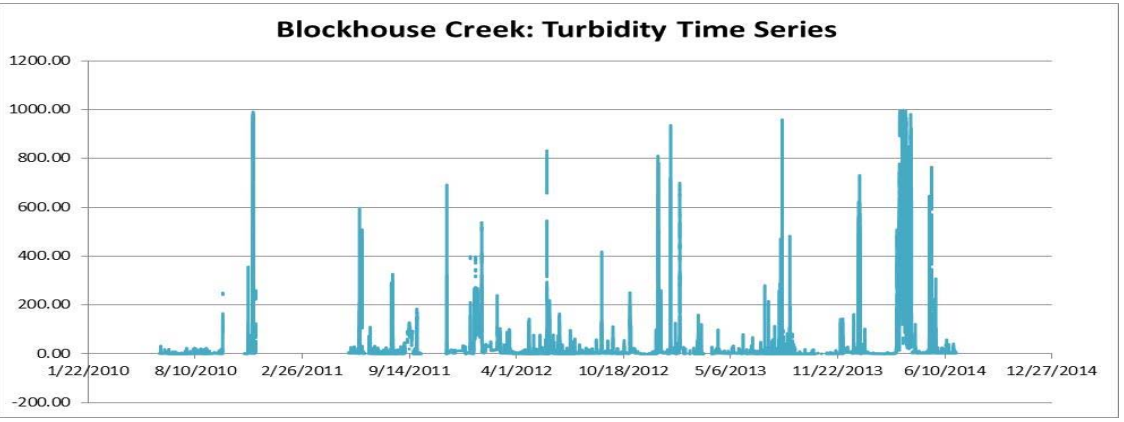
Aerial Image of Inset portion of Blockhouse Ck



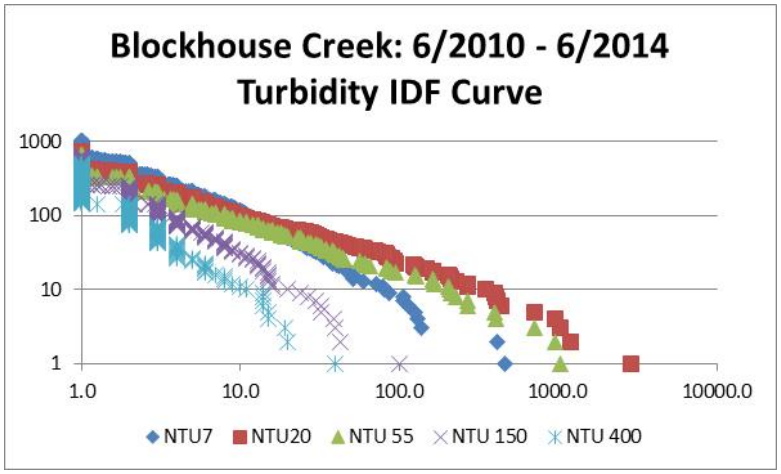
TWI model for part of Blockhouse Ck (different scale from preceding view)



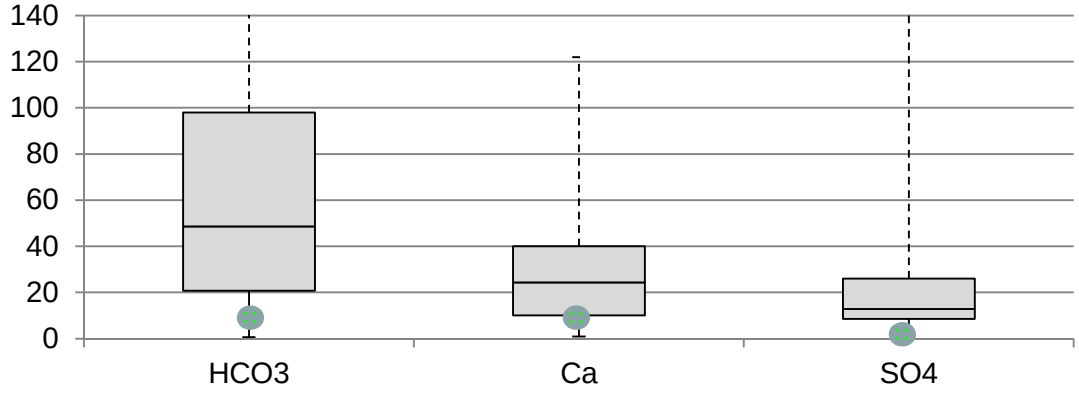
TWI model w/ digitized gas items: Blockhouse Ck

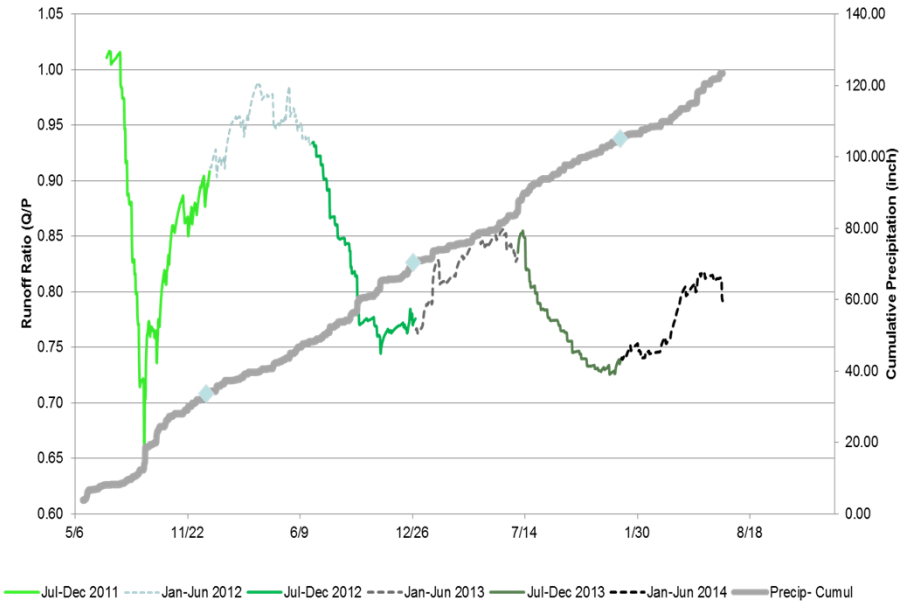


Blockhouse: NTU	
Mean	10.78635
Standard Error	0.093261
Median	1.7
Mode	0.4
Standard Deviation	50.45599
Sample Variance	2545.807
Kurtosis	181.8474
Skewness	12.14219
Range	1000.9
Minimum	-1
Maximum	999.9
Sum	3157208
Count	292704
Confidence Level(95.0%)	0.182788



Dominant Ion Concentrations (mg/L): Gray's Run vs. >2,000 Susquehanna River Basin Samples





Runoff Ratio and Precipitation: Gray's Run July 2011 - June 2014